

R B PATIL & ASSOCIATES

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Manganga SSK Ltd

Sonarsidhha nagar, Atpadi

Plant capacity - 1250 TCD

Process of sugar- Double sulphitation

Make of the plant - Walchandnagar

Manganga sugar factory, is the 38 years old & undeveloped old technology plant. The factory Seasons total 10, factory was not in working condition. From last 4 years factory Crushing is stopped. Hence most of the machinery, plates, body shell & structure chequer plates are worn out. MS fabricated & MS piping should be checked for its thicknesses & Leakages.

Expansion of the mill is carried out completely wrong & without future technology concepts. TRPF Rollers are not perforated for increase juice drainage. Cane preparative device, cane carrier & its powers are very less to achieve higher crushing rates.

Existing mill plant needs necessary rectification & modifications as below.

Mill Section

- 1 Cane unloader - Existing 3 motion cane unloader to be converted to 2 motion & strengthening of bridge to be done out of 4 numbers existing trolleys two numbers trolleys at first bridge, its capacity should be increased with higher size motor and gearbox to loading drum for increasing its capacity from 5 metric ton to 7.5 metric ton to achieve higher crushing rate.
- 2 Feeder table - Existing feeder table needs rearrangement and modifications for proper cane dropping in the cane carrier.
- 3 Existing cane carrier is very less width 1525 mm, horizontal length only 33 mtr and depth 1130 mm only for achieving higher crushing rate resulting in cane carrier jamming and overloading of the cane carrier and also jamming at inlet of cane

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chopper, to overcome this bottleneck & for increasing the bulk density of cane along with cane preparation & to reduce the load on cane preparatory devices and mill station it is necessary to install innovative techno effective Levello cutter “Brahmastra” unit in the cane carrier.

- 4 Degree between leveller and fibrizer to be corrected.
- 5 Cane leveller - Power 250 HP is bottleneck and its clearance should be reduced to 250 mm and it is possible due to techno effective levello cutter to be installed in the cane carrier.
- 6 Fibrizer - No change, its PI is less and below 80 which must be improved to achieve higher crush rate & it is possible only due to our new unit installed in cane carrier.
- 7 ACFC system - to be checked for its accuracy and proper functioning.
- 8 Mil no 1 has heavy juice drainage from right side out of head stock. Its TRPF pressure chute, scrapers and its degree should be checked. The TRPF roller surface speed with respect to mill should be checked and for Donnelley chute jamming problem and juice drainage from right side. Also all mill TRPF rollers are not perforated affecting on increase of juice drainage & crushing rate.

Also all mill rollers needs some changes for improving juice drainage and crushing rates.

Boilers

- 1 All boilers cold air entry should be arrested.
- 2 The hot air temperature of air heater below furnace should be checked and corrected up to 170 degree Celsius.
- 3 All soot blowers should be in operating condition by doing proper overhauling and maintenance which are closed now.
- 4 The boiler data sheet should be filled up for observe running parameters of the boiler and scope and margin for improvement.
- 5 Boiler thermal efficiency improvement & pressure drop problem to be rectified.

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- 6 2.5 megawatt and 1.5 megawatt turbine synchronizing panel should be installed for increased load in the plant.

For distillery 100 to 150 KW load will increase and also for increasing crushing rate from 2400 metric ton 3200 metric ton load on mill will increase.

- 7 Existing power factor should be improved to 0.98 for less power consumption.

Boiling House

- 1 Existing PRDS station is not working properly to correct the temperature of exhaust steam 125 deg.Celsius + - 5 deg.Celsius needs some modifications or replacement.
- 2 Existing clear Juice heater capacity 140 square metre to be checked for 3200 metric ton cane crushing capacity.
- 3 Addition of 350 square metre heating surface one juice heater to be added for 3200 mt crushing in sugar plant.
- 4 Existing 1500 square metre first body and 750 square metre second body bottom overflow to be converted into gravity flow.
- 5 New 1800 square metre semikestner to be commissioned to achieve higher crushing rate 3200 mt and steam economy by completing remaining 10% work.
- 6 Existing dorr 24 feet capacity is less and it is sufficient for only 2400 metric ton crushing. Hence new dorr 32 feet should be commissioned & taken on line for higher crushing rate.
- 7 Continuous sulphur burner new of satwik make vapcon type has sublimation problem which should be rectified.
100 kg – continuous burner
80 kg - continuous burner
80 kg – continuous burner
- 8 Juice sulphiter retention time to be checked for 150 TCH & corrected.
- 9 New incomplete lime tank to be commissioned.
- 10 Both vacuum filter screen to be replaced.

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- 11 Pan vacuum crystallizer outer shell thickness to be checked and if found thin to be replaced.
- 12 Syrup supply tank for capacity increasing, height to be increased and its bottom top to be replaced.
- 13 4 number PANS (3, 4, 5, 6) tube height is more 1190 mm affecting on Pan Circulation ratio and pan boiling. Mechanical circulators should be installed to improve boiling rate and reduce Pan dropping period.
- 14 Existing power house turbine has less margin to increase further power. Hence for power saving in the sugar plant around 400 KW it is very necessary.
 - a) All Pan Condenser automation should be done.
 - b) All crystallizer existing gearbox should be replaced with planetary gearbox.
 - c) Wherever possible VFD driver should be installed for power saving.
 - d) Power factor of power house alternator should be increased above 0.98.Thus there is need of minimum power saving up to 400 KW.
- 15 MonganSen grader sugar jamming problem is there and gradation is not proper and also grader vibration is up to ground. This problem should be rectified.
- 16 Sillo bagging and auto weighing machine, slat conveyor and stitching machine should be installed to reduce man power.

Thus by implementing above we can achieve constant crushing rate of 3200 mt per day in the sugar factory & can save 60 to 75 mt bagasse per day by running existing distillery. But for that 1 no. continuous machine & 1 no. A centrifugal machine should be added for crushing 3200 mt crushing in sugar factory.

This is our full & final, foolproof & perfect observation, report with all type of crushing guarantee of 3200 to 3300 mt per day.

Thanking You,

Yours Faithfully
R B PATIL
TECHNICAL DIRECTOR
R B PATIL & ASSOCIATES